

(12) **UK Patent Application** (19) **GB** (11) **2 267 643** (13) **A**

(43) Date of A publication **15.12.1993**

(21) Application No **9212514.5**

(22) Date of filing **12.06.1992**

(71) Applicant  
**Charwell Consumer Products Limited**  
  
**(Incorporated in the Channel Islands)**

**Charwell House, Bray Road, Vale,  
Guernsey, Channel Islands**

(72) Inventor  
**William John Oliver**

(74) Agent and/or Address for Service  
**Brookes & Martin**  
**High Holborn House, 52-54 High Holborn,**  
**London, WC1V 6SE, United Kingdom**

(51) INT CL<sup>5</sup>  
**A01N 25/02**

(52) UK CL (Edition L)  
**A5E ECD E303 E311 E318 E326**  
**U1S S1308 S1312**

(56) Documents cited  
**GB 2232354 A**

(58) Field of search  
UK CL (Edition L) **A5B BHA BJA BJB, A5E ECD ET**  
INT CL<sup>5</sup> **A01N, A61K**  
**Online databases: CAS ONLINE, WPI**

(54) **Louse repellent composition**

(57) A louse repellent composition is provided which comprises a solution of piperonal in an amount of at least 1% by weight in an aqueous alcohol, the solution containing a non-ionic emulsifier comprising an alkoxylated alcohol or fatty acid, and being capable of forming a film on the skin without rapid formation of crystals of piperonal.

GB 2 267 643 A

LOUSE REPELLENT COMPOSITIONS

The present invention relates to louse repellent compositions.

In our co-pending application No. 9004020.5 we disclose a composition which is effective in killing lice and eggs and acting as a louse repellent. Although the compositions of our above application have proved to be effective, they do suffer from some disadvantages. One of these is that the compositions contain high levels of alcohol in order to maintain the solubility of the piperonal and to avoid premature crystallisation when spreading the composition on the hair. High concentrations of alcohol in the compositions can cause skin irritation which is an undesirable side effect.

According to the present invention, therefore, there is provided a louse repellent composition which comprises a solution of piperonal in an aqueous alcohol, said solution containing a non-ionic emulsifier comprising an alkoxyated fatty alcohol or fatty acid, the composition being capable of forming a film on the skin without rapid formation of crystals of piperonal. The presence of the non-ionic emulsifier enables the alcohol content of the compositions to be reduced.

The alcohol composition, preferably, is a mixture of ethanol and propanol, especially isopropanol. In addition to reducing the alcohol content, the compositions of the

invention have high stability against crystallisation at low temperature, e.g. down to 0°C which reduces the danger of crystals forming and blocking the dispenser. The compositions also have better appearance when applied to the hair and skin.

Preferably, two emulsifiers are employed in the compositions of the invention. These are an hydroxy fatty alcohol alkoxyate and an alkoxyated castor oil fatty acid. These two emulsifiers appear to act synergistically in keeping the piperonal in solution and deterring crystallisation.

Because of the higher water content in the compositions of the invention, they are more pleasant to use and crystallisation is delayed. The piperonal may be employed in relatively low compositions and still be effective as a repellent for lice.

A further advantage of the compositions of the invention is that piperonal gives the compositions a pleasant fruity flavour. Concentrations of piperonal from about 0.5 to 10% may be employed, preferably 1 to 3%.

The compositions may also preferably include phenoxyethanol as anti-microbial preservative.

One example of the present invention will now be described by way of illustration.

<u>Raw Material</u>	<u>Specification</u>	<u>% w/w</u>
PIPERONAL	F.C.C. III*	2.0
Eumulgin L	C.P./Henkel	3.0
Eumulgin RO 40	C.P./Henkel	3.0
Phenoxyethanol	B.P. 1988	1.0
Denatured Ethanol B96	C.P./Alcohols	25.3
Isopropyl Alcohol IPSI	B.P. 1988	7.6
Mains Water - UV treated	C.P.	58.1

Eumulgin L is a 2-hydroxy fatty acid alkoxyate available from Henkel AG and Eumulgin RO 40 is an ethoxylated castor oil also available from Henkel AG.

The two emulsifiers were dissolved in the water, together with phenoxyethanol and piperonal dissolved in the ethanol. Isopropyl alcohol was added to the ethanol with was then added to the water solution to form a clear solution. The resulting solution can be packaged in an aerosol or pump-type dispenser.

CLAIMS:-

1. A louse repellent composition which comprises a solution of piperonal in an amount of at least 1% by weight in an aqueous alcohol, said solution containing a non-ionic emulsifier comprising an alkoxyated alcohol or fatty acid, the composition being capable of forming a film on the skin without rapid formation of crystals of piperonal.

2. A louse repellent composition according to claim 1 wherein the emulsifier comprises an hydroxy fatty alcohol alkoxyate.

3. A louse repellent according to claim 1 or claim 2 wherein the emulsifier comprises ethoxylated castor oil fatty acids.

4. A louse repellent according to any one of the preceding claims wherein the alcoholic solution comprises a mixture of ethanol and isopropanol.

-5-

**Patents Act 1977**  
**Examiner's report to the Comptroller under**  
**Section 17 (The Search Report)**

Application number

GB 9212514.5

**Relevant Technical fields**

(i) UK Cl (Edition L ) A5E ECD ET; A5B BHA BJA BJB

(ii) Int Cl (Edition 5 ) A01N, A61K

**Databases (see over)**

(i) UK Patent Office

(ii) ONLINE DATABASES: CAS ONLINE, WPI

**Search Examiner**

P N DAVEY

**Date of Search**

19 July 1993

Documents considered relevant following a search in respect of claims 1-4

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
A	GB 2232354 A (CHARWELL) See eg page 3, lines 14-20	1-4

Category	Identity of document and relevant passages	Relevant to claim(s)

### Categories of documents

**X:** Document indicating lack of novelty or of inventive step.

**Y:** Document indicating lack of inventive step if combined with one or more other documents of the same category.

**A:** Document indicating technological background and/or state of the art.

**P:** Document published on or after the declared priority date but before the filing date of the present application.

**E:** Patent document published on or after, but with priority date earlier than, the filing date of the present application.

**&:** Member of the same patent family, corresponding document.

**Databases:** The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).